1 The diagram shows a square and an isosceles triangle.
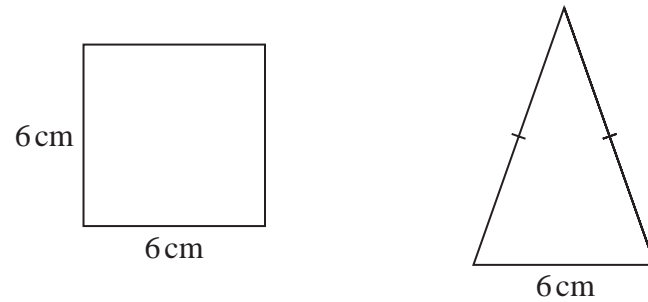
6 cm

6 cm

6 cm

Diagram **NOT** accurately drawn

The square has sides of length 6 cm.
The base of the isosceles triangle is 6 cm.

The perimeter of the square is equal to the perimeter of the isosceles triangle.

The shaded shape is made by putting three of the isosceles triangles around the square as shown in the diagram below.
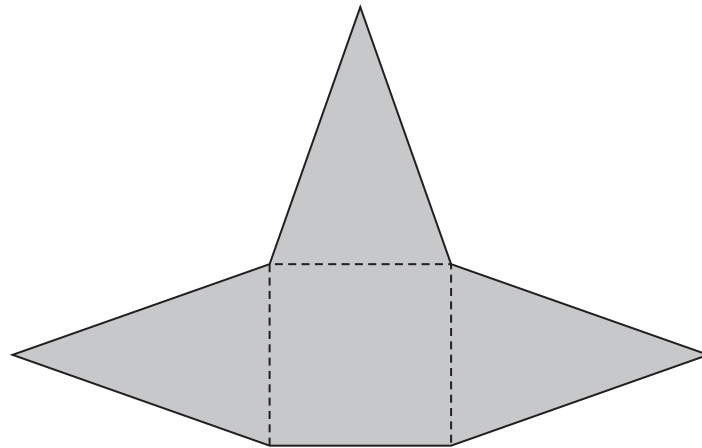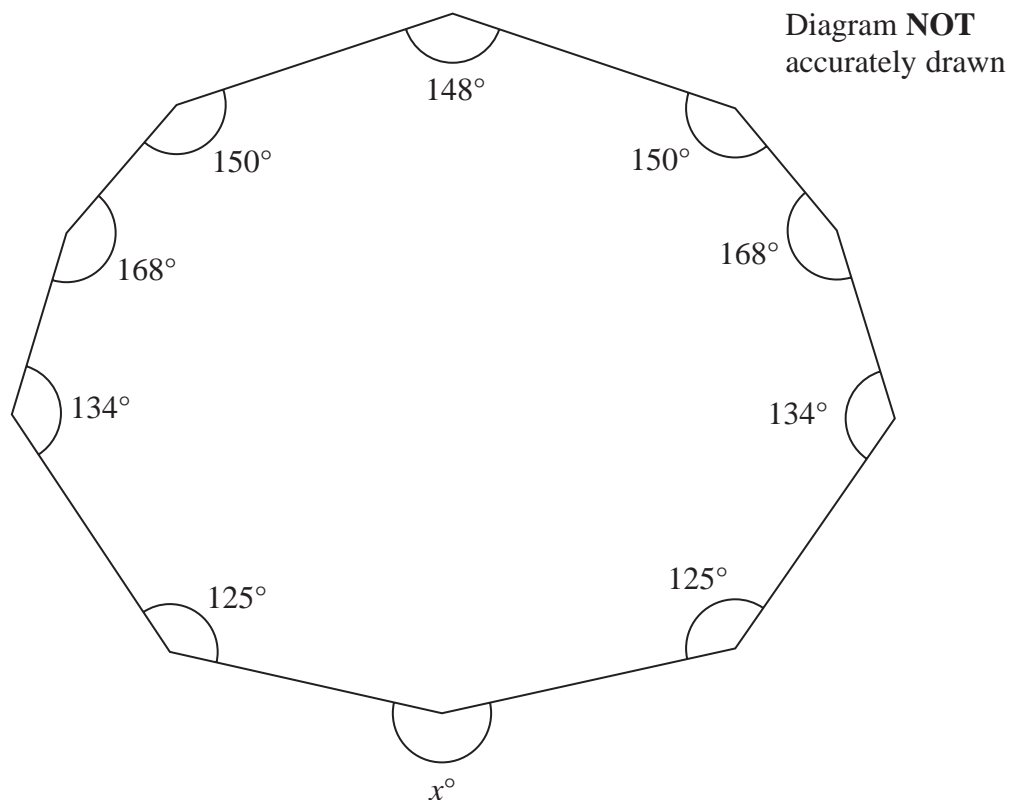
Diagram **NOT** accurately drawn

Work out the perimeter of the shaded shape.
Show your working clearly.

.... cm

(Total for Question 1 is 4 marks)

2 Here is a 10-sided polygon.

Diagram **NOT** accurately drawn

148°

150°   150°

168°   168°

134°   134°

125°   125°

x°

Work out the value of *x*.

x = ...

(Total for Question 2 is 4 marks)

3 The diagram shows two congruent isosceles triangles and parts of two congruent regular polygons, **X** and **Y**.
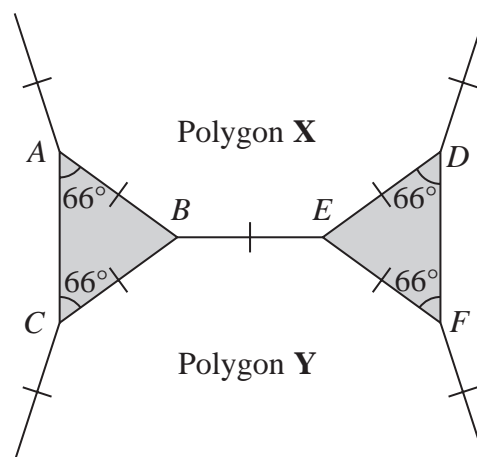
Polygon **X**

A

66°

B

E

D

66°

66°

66°

C

F

Polygon **Y**

Diagram **NOT** accurately drawn

The two regular polygons each have *n* sides.

Work out the value of *n*.

n = ...

(Total for Question 3 is 3 marks)

4 A regular polygon has *n* sides.
The size of each interior angle of the regular polygon is 140°

Work out the value of *n*.

n = ...

(Total for Question 4 is 3 marks)

5 The diagram shows a regular pentagon, *ABCDE*, a regular hexagon, *CFGHID*, and a quadrilateral, *EDIJ*.
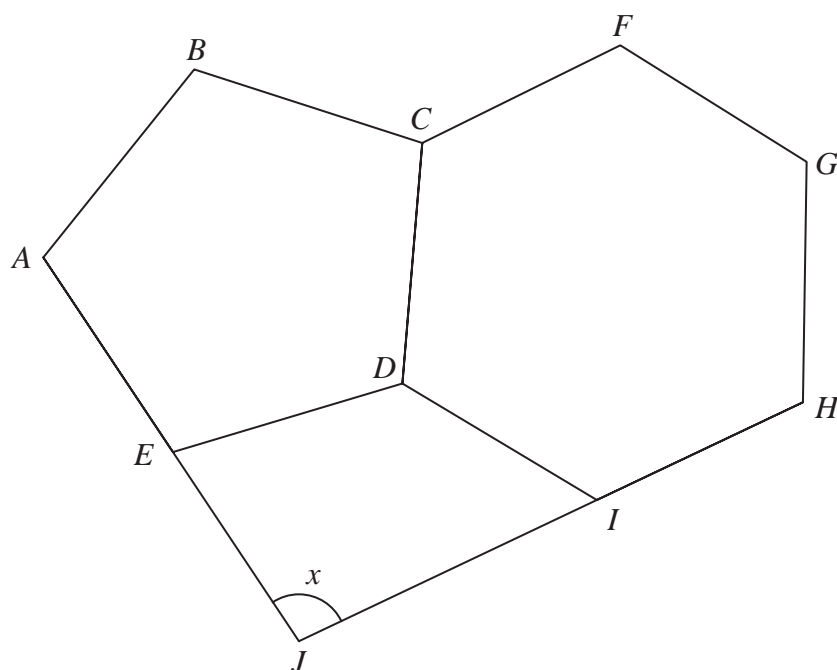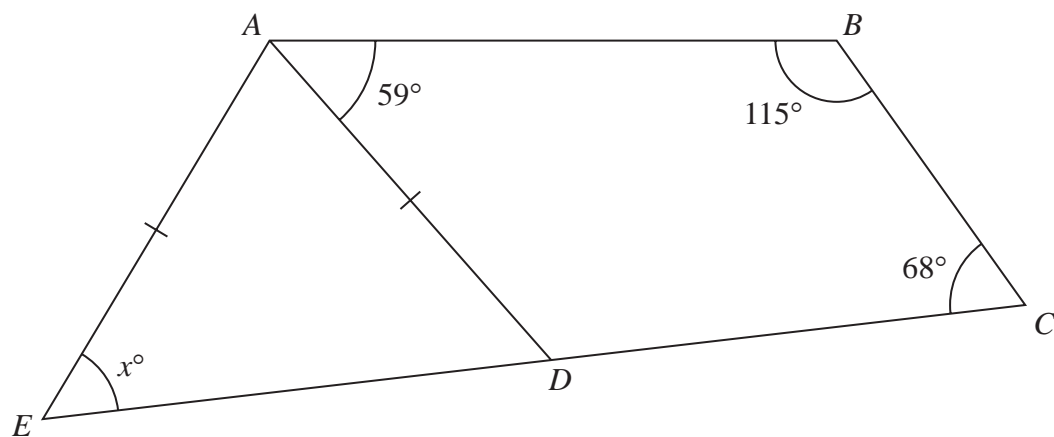

Diagram **NOT** accurately drawn

AEJ and *HIJ* are straight lines.

Work out the size of the angle marked *x*.
Show your working clearly.

°
....

(Total for Question 5 is 5 marks)

6   The diagram shows quadrilateral *ABCD* and isosceles triangle *ADE*, where *AE = AD*.

EDC is a straight line.

Work out the value of *x*.
Give a reason for each stage of your working.

x = ...

(Total for Question 6 is 4 marks)

7 The diagram below shows the trapezium *PQRS*
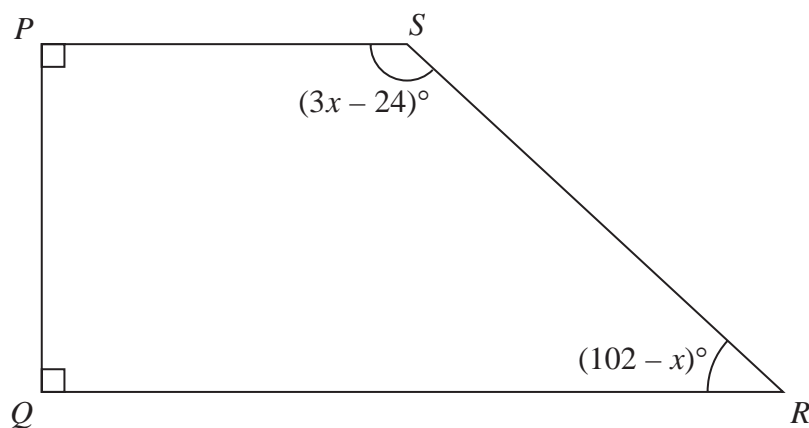
Diagram **NOT**
accurately drawn

Angle *PQR* and angle *QPS* are right angles.

Find the value of *x*

x = ...

(Total for Question 7 is 3 marks)

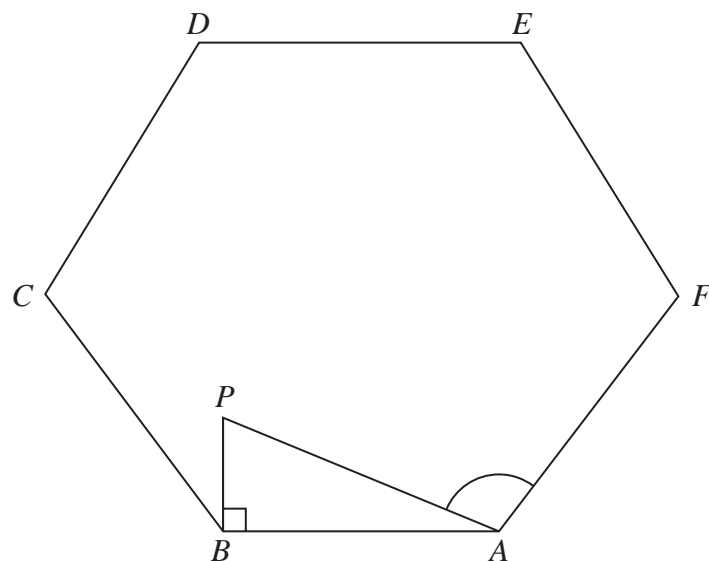**8** The diagram shows triangle *ABP* inside the regular hexagon *ABCDEF*

Diagram **NOT** accurately drawn

$AB = 5\,\text{cm}$ $BP = 2\,\text{cm}$ Angle $ABP = 90°$

Work out the size of angle *PAF*
Give your answer correct to 3 significant figures.

.... °

(Total for Question 8 is 5 marks)

9 The diagram shows a regular octagon *ABCDEFGH* and a regular pentagon *ABIJK*
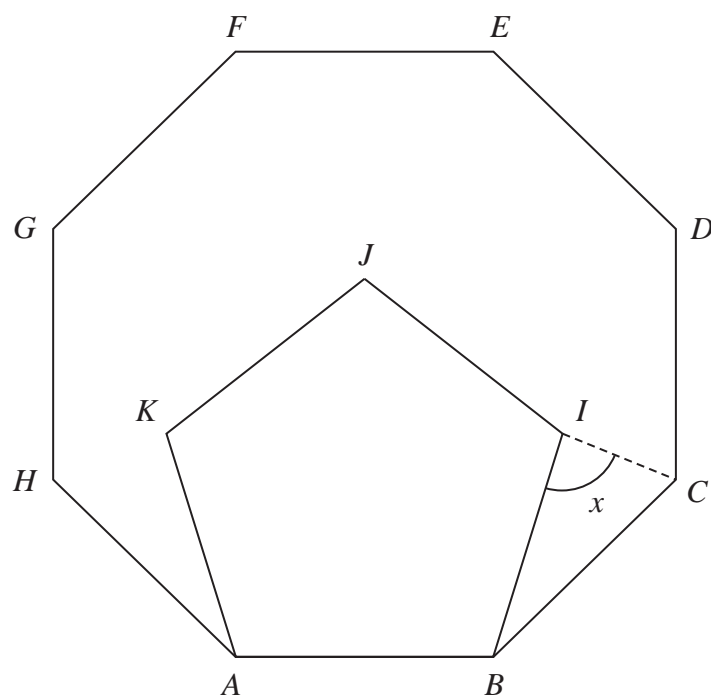
Diagram **NOT**
accurately drawn

Work out the size of the angle *x*

10 The diagram shows a regular 10-sided polygon, *ABCDEFGHIJ*
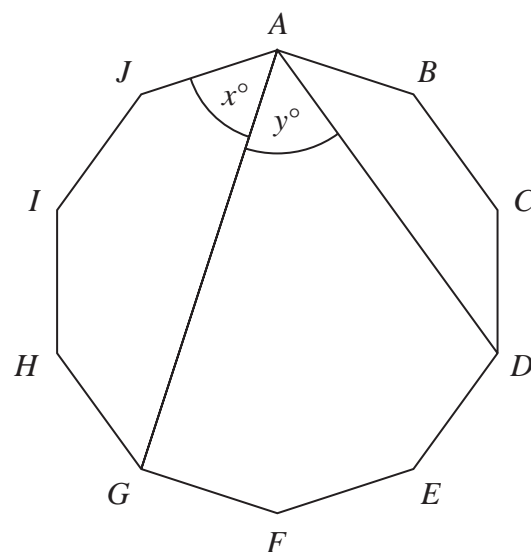
Diagram **NOT**
accurately drawn
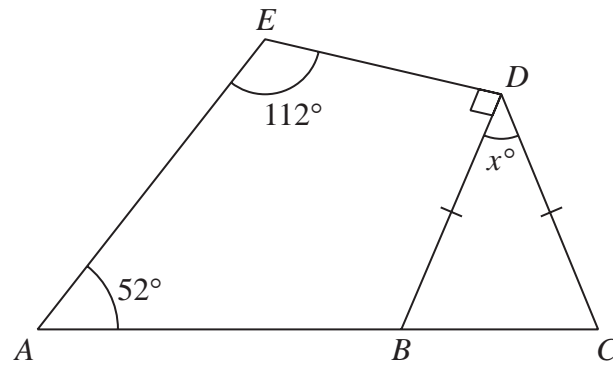

Show that $x = y$

(Total for Question 10 is 4 marks)

11

Diagram **NOT** accurately drawn

BCD is an isosceles triangle with *BD* = *CD*
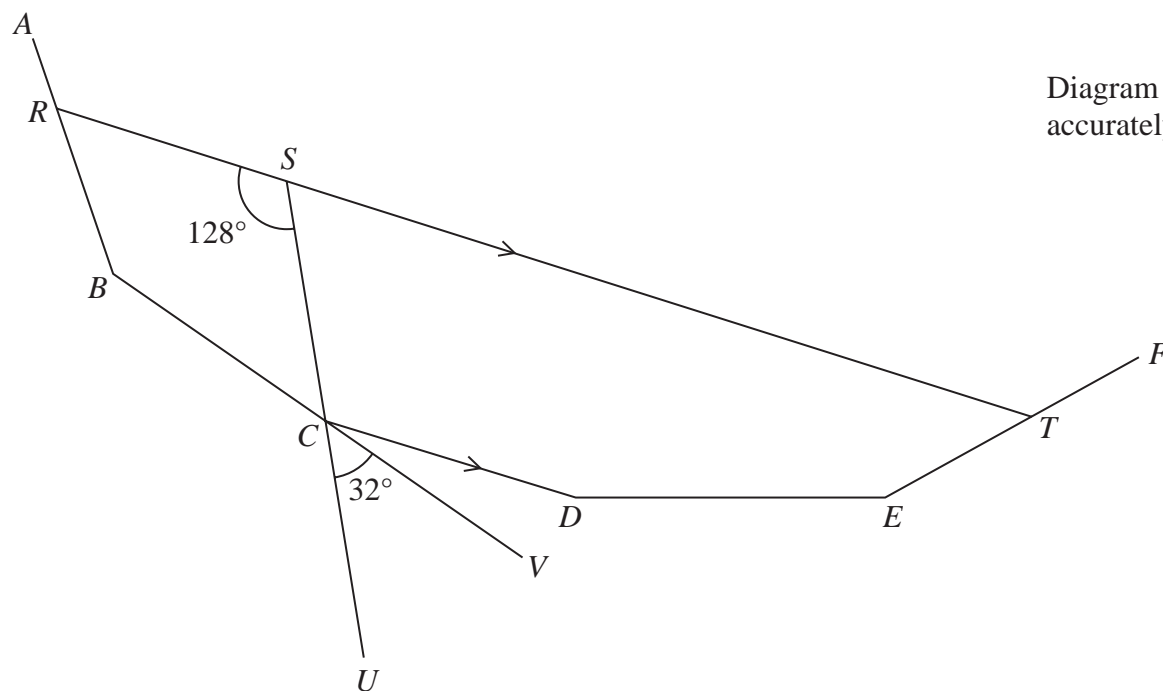*ABC* is a straight line.
ABDE is a quadrilateral.

Work out the value of *x*
Give a reason for each stage of your working.

x = ...

(Total for Question 11 is 4 marks)

12

Diagram **NOT** accurately drawn

AB, *BC*, *CD*, *DE* and *EF* are five sides of a regular polygon.

RST, *SCU* and *BCV* are straight lines.
RST is parallel to *CD*
Angle *RSC* = 128°
Angle *UCV* = 32°

Work out how many sides the polygon has.
Show your working clearly.

(Total for Question 12 is 4 marks)
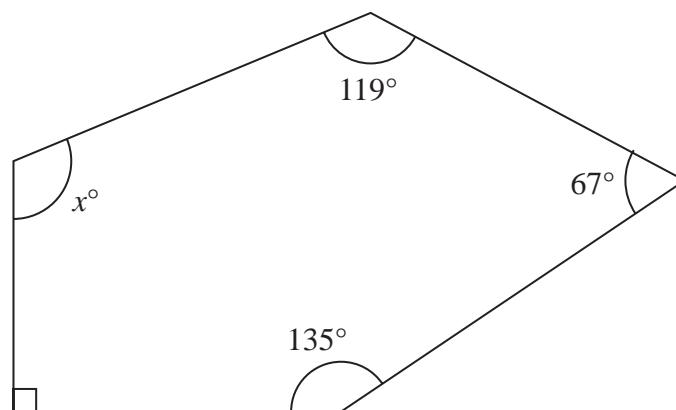
13 The diagram shows a pentagon.

119°

67°

Diagram **NOT**
accurately drawn

$x°$

135°

Work out the value of x

$x =$ ....

(Total for Question 13 is 3 marks)

14 Here is a 9-sided regular polygon *ABCDEFGHJ*, with centre *O*
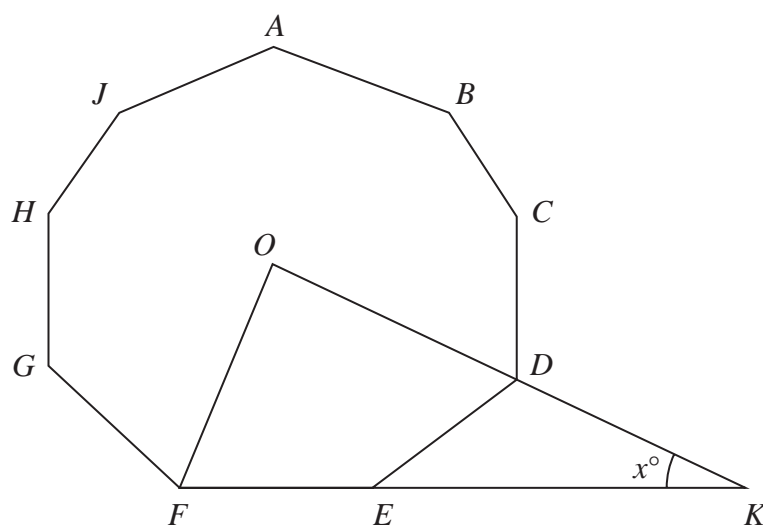
Diagram **NOT**
accurately drawn

ODK and *FEK* are straight lines.

Work out the value of *x*

$x = $ ....

(Total for Question 14 is 3 marks)